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(54) WARP KNIT BASE MATERIAL FOR CARPET WITH BACK GRAY KNITTED
INTEGRALLY AND KNITTING DEVICE THEREOF

(72) Inventors:

Yoshinori Murakami
Meyer Japan Co., Ltd.
[transliteration]
1-27-33 Kamikitano,
Fukui-shi, Fukui-ken

Matsuyuki Kurimori
Meyer Japan Co., Ltd.
1-27-33 Kamikitano,
Fukui-shi, Fukui-ken

(71) Applicant:

000230168
Meyer Japan Co., Ltd.
[transliteration]
1-27-33 Kamikitano,
Fukui-shi, Fukui-ken

[There are no amendments to this patent.]

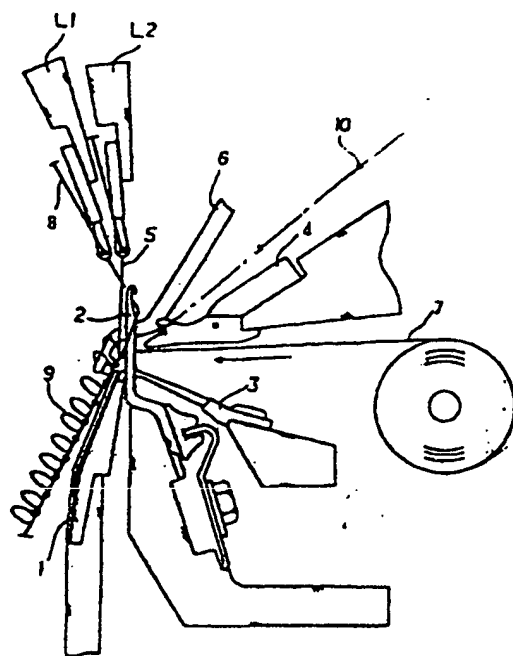
(57) Abstract

Objective

To provide a type of warp knitware for carpets, which has the [back] gray made of a nonwoven fabric reinforced by stitch yarn and weft as the secondary backing material and the piles on the use side of the carpet knit at the same time, and to provide a knitting device for the aforementioned warp knitware.

Constitution

A type of warp knitware for carpets, characterized by the fact that the base cloth is formed by nonwoven fabric (7) reinforced by chain knit of chain knit yarn (8) and weft (10) fed by a weft inserting device, and, at the same time, inserting piles (9) are formed by shuttling pile yarn (5) onto the inserting pile yarn leading member; and a knitting device characterized by the fact that it has an inserting pile yarn leading member, which can knit a base cloth containing nonwoven fabric (7) and inserting piles (9) integrally, and it has the nonwoven fabric fed and has the weft inserted.



Claims

1. A type of warp knitware for carpets with the back gray knitted integrally, characterized by the fact that while the base cloth is formed from a nonwoven fabric reinforced with chain knit and weft, piles inserted from the base cloth are raised.

2. A knitting device of warp knitware for carpets with the back gray knitted integrally, characterized by the fact that the warp knitting frame equipped with a weft inserting device has a knitting main portion consisting of warp knitware supporting member, fleece needle, tongue, middle inserter, base lead, and warp knitware holding member, and an inserting pile yarn leading member is arranged at the position where the pile yarn can be led.

3. A knitting device of warp knitware for carpets with the back gray knitted integrally, characterized by the fact that a jacquard bar is adopted as the base lead for performing appropriate patterning by means of the inserting piles.

Detailed explanation of the invention

[0001]

Industrial application field

This invention pertains to a type of warp knitware for carpets with the back gray knitted integrally, and its knitting device.

[0002]

Prior art

In the prior art, urethane foam as well as woven fabrics made of linen, polypropylene, etc. have long been used in the tuft, woven fabric, knitware and other secondary backing materials of carpet. Recently, however, nonwoven fabric has been introduced, reinforced by stitch yarn and weft on a Raschel warp knitting frame equipped with a weft inserting device. When a urethane foam is used for a long time, it is compressed, so that gases having offensive odors are generated from the foam. When it is incinerated, residue that cannot be burned is formed. Consequently, the feed material has to be separated. Also, when a woven fabric is used, without an increase in the productivity, the weft rolls up and down to form a tissue. In this way, although there is a problem of low rupture strength of the product, the problem can be solved by the nonwoven fabric reinforced by the chain stitch and weft.

[0003]

Also, as a production means of the pile warp knitware that becomes the use side of the carpet, there is the tricot frame equipped with ball sinker [transliteration]. It is well known that by adjusting the ball sinker needle, the length of the piles led on the ball sinker needle can be changed, and it is possible to obtain a long-pile warp knitware and short-pile warp knitware.

[0004]

Problems to be solved by the invention

However, even for the nonwoven fabric reinforced by stitch yarn and weft, just as for the urethane foam and woven fabric base material, there is no change, in that resin bonding must be carried out with the pile warp knitware. Consequently, the air permeability is poor, so that a problem related to mites still remains. Of course, when it is incinerated, a certain amount of residue and gas generation take place unavoidably.

[0005]

On the other hand, when a tricot machine is used to knit the pile warp knitware, corresponding to the desired pile length, for the entire knitting width, all of the ball sinker units have to be exchanged. In order to knit the pile by the lead positioned on the front, the pile yarn also should form the kneehole loops and be integrated into the warp knitware. Consequently, the pile yarn expands to the inner side of the warp knitware, and problems occur when resin bonding is carried out. Also, the basis weight rises, the cost is boosted, and, when the pile yarn is overlapped, it enters the hook of the needle. Consequently, it is impossible to make use of a large-count yarn.

[0006]

The purpose of this invention is to solve the aforementioned problems of the conventional technology by providing a type of warp knitware for carpets which allows simultaneous integral knitting of a base cloth as a nonwoven fabric reinforced by stitch yarn and weft as the secondary backing material, and the piles that become the use side of the carpet.

[0007]

Means to solve the problems and function

This invention provides a type of warp knitware for carpets with the back gray knitted integrally, characterized by the fact that while the base cloth is formed from a nonwoven fabric reinforced with chain knit and weft, piles inserted from the base cloth are raised.

[0008]

Also, this invention provides a type of knitting device of warp knitware for carpets with the back gray knitted integrally, characterized by the fact that the warp knitting frame equipped with a weft inserting device has a knitting main portion consisting of warp knitware supporting member, fleece needle, tongue, middle inserter, base lead, and warp knitware holding member, and an inserting pile yarn leading member is arranged at a position where the pile yarn can be led.

[0009]

Also, a jacquard bar is adopted as the base lead for performing appropriate patterning by means of the inserting piles.

[0010]

The chain knit row formed by the base lead arranged on the front in the warp knitting frame are connected in the lateral direction by means of a weft fed from behind the warp knitting frame using the weft inserting device. At the same time, the nonwoven fabric fed from behind the warp knitting frame is stitch bonded by means of the chain-knit yarn. In this way, the base cloth is formed as a nonwoven fabric reinforced by chain knit and weft.

[0011]

For the base lead for inserting pile yarn arranged behind the base lead for chain knit yarn on the warp knitting frame, when the inserting pile yarn is underlapped for 2 stitches, by leading on the inserting pile yarn leading member, it is possible to form the inserting pile with the two ends engaged by the chain-knit sinker loop.

[0012]

In the jacquard bar arranged at the position of the base lead for inserting pile yarn, as is well known, each jacquard is controlled individually, and the inserting pile is controlled appropriately based on the pattern information.

[0013]

Application examples

In the following, the knitting method will be explained with reference to figures for the warp knitware for carpets with the back gray knitted integrally in this invention. Figure 1 is a side view of the knitting main portion of the Raschel machine equipped with a weft inserting device for knitting the warp knitware for carpets with the back gray knitted integrally in this invention, with the stitch comb excluded. Figure 2 is a diagram illustrating the knit tissue showing an example of the base tissue of the warp knitware for carpets with the back gray knitted integrally in this invention. Figure 3 is a schematic diagram illustrating the pile forming state of the warp knitware for carpets with the back gray knitted integrally in this invention, with the weft excluded. Figure 4 is a side cross-sectional view illustrating the state of formation of pile of the warp knitware for carpets with the back gray knitted integrally in this invention, with the weft excluded.

[0014]

In Figures 1, 2, 3 and 4, (1) represents a tricot plate as the warp knitware supporting member; (2) represents a fleece needle; (3) represents a tongue; (4) represents a middle inserter. These parts perform the conventional knitting movement. L1 represents a base lead for the chain-knit yarn. Chain-knit yarn (8) is knitted into chain knit (11) by means of base lead L1, which guides the yarns arranged as a bundle. As middle inserter (4) moves in the direction indicated by the arrow, as shown in Figure 2 [sic; 1], connection in the lateral direction is made by weft (10) arranged in front of fleece needle (2). At the same time, nonwoven fabric (7) fed from behind the warp knitting frame is pierced through by fleece needle (2). As the stitch bonding is performed by chain-knit

yarn (8), the base cloth made of nonwoven fabric (7) reinforced by chain knit (11) and weft (10) is formed.

[0015]

L2 represents a base lead for the inserting pile yarn. As pile yarns (5), which are arranged as a bundle for leading and which perform insertion knitting (12) for 2 stitches, are led onto pile needle (6) as the inserting pile yarn shuttle member, as the base cloth, inserting pile (9) with two ends engaged to sinker loops (11a) and (11b) of chain knit (11) is formed integrally as a base cloth.

[0016]

Effect of the invention

For the warp knitware for carpets with the back gray knitted integrally and its knitting device of this invention, there is no need to carry out resin bonding between the secondary backing material and the pile warp knitware. As a result, it is possible to obtain a carpet base material with excellent air permeability, and no residue or gas is generated during incineration. Also, there is no need to exchange the ball sinker unit as would be needed in the prior art. Instead, formation of pile is also carried out by means of the base lead for the inserting pile yarn. Consequently, the inserting pile is not accompanied with the needle loop. As a result, there is no expansion to the inner side of the warp knitware, the basis weight becomes smaller, the cost is cut, and, as knitting is performed by means of the insertion knitting method, there is no entrance for the needle hook. Consequently, it is possible to form piles using large-count yarns. As patterning is carried out by means of jacquard, it is possible to expand the use to carpets for interior use.

[0017]

Also, by setting the jacquard bar at the position of base lead L2 for inserting pile yarn, it is possible to perform appropriate patterning using the inserting pile.

Brief description of the figures

Figure 1 is a side[-view] diagram illustrating the main knitting portion of the Raschel machine equipped with a weft inserting device for knitting the warp knitware for carpets with the back gray knitted integrally in this invention, with the stitch comb as the knitware holding member excluded.

Figure 2 is a knit tissue diagram illustrating an example of the base tissue of the warp knitware for carpets with the back gray knitted integrally in this invention.

Figure 3 is a schematic diagram illustrating the pile forming state of the warp knitware for carpets with the back gray knitted integrally in this invention, with the weft excluded.

Figure 4 is a side cross-sectional view illustrating the pile forming state of the warp knitware for carpets with the back gray knitted integrally in this invention, with the weft excluded.

Explanation of symbols

- 1 Tricot plate
- 2 Fleece needle
- 3 Tongue
- 4 Middle inserter
- 5 Pile yarn
- 6 Pile needle
- 7 Nonwoven fabric
- 8 Chain-knit yarn
- 9 Inserting pile

- 10 Weft
- 11 Chain knit

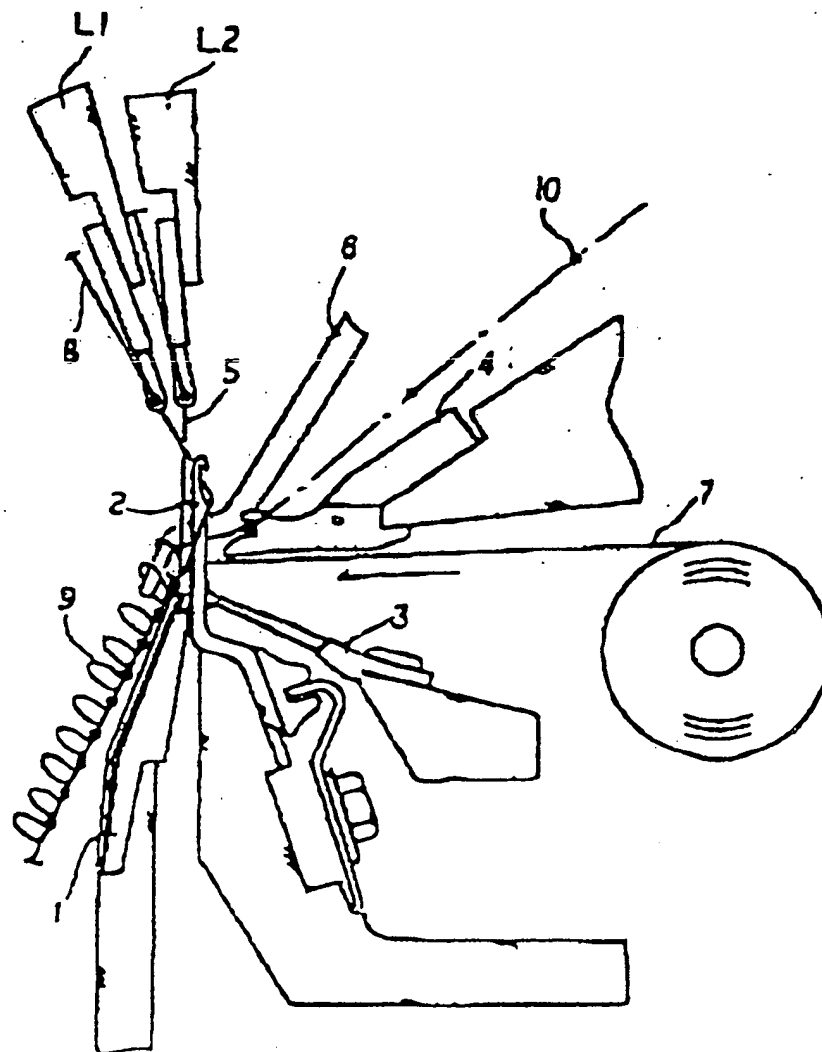


Figure 1

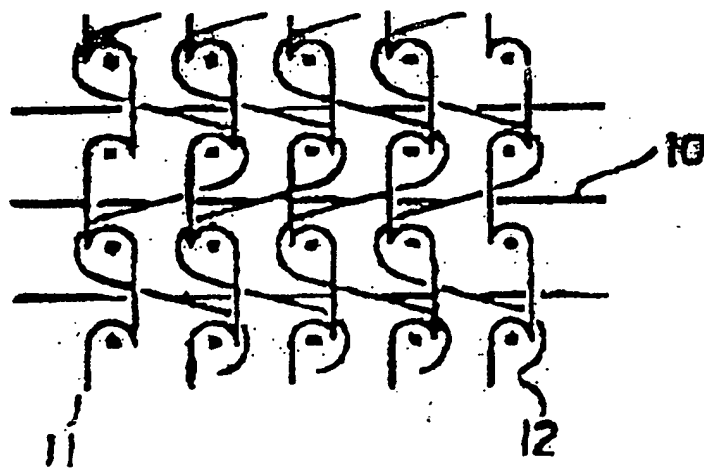


Figure 2

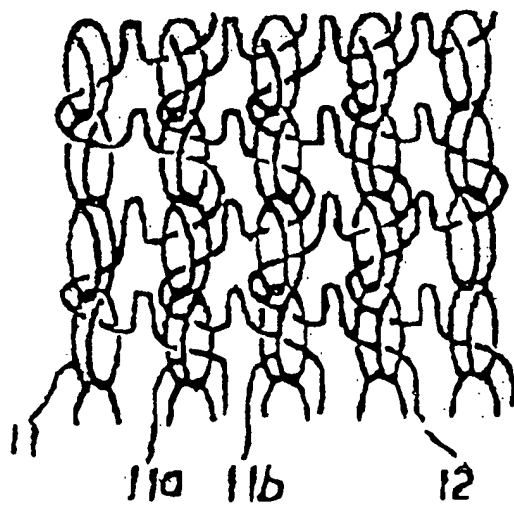


Figure 3



Figure 4

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